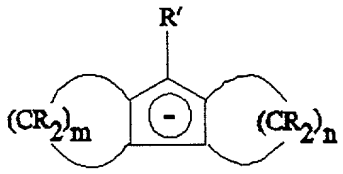
What is claimed is:

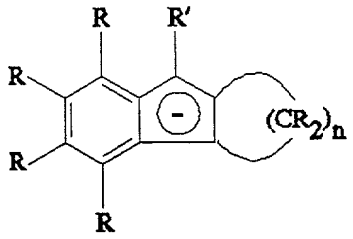
1. A metallocene compound of formula (I)

$$(YR_p)_q(Cp)(Cp')MX_2 \qquad (I)$$

wherein Cp is a group selected from those of formula (II) and (III):



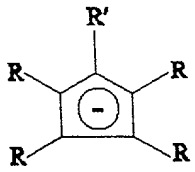
(II)



(III)

wherein m and n, same or different from each other, are integer comprised between 2 and 6 and, preferably, comprised between 3 and 5;

Cp' is a group selected from those of formula (II), (III) e (IV):



(IV)

wherein $(YR_p)_q$ is a divalent group which bridges the two groups Cp and Cp', Y being selected indifferently from C,

Si, Ge, N and P; p is 1 when Y is N or P, and is 2 when Y is C, Si or Ge;

q can be 0, 1, 2 or 3;

M is a transition metal selected from Ti, Zr or Hf;

the substituents X, same or different from each other, are halogen atoms, -OH, -SH, R, -OR, -SR, $-NR_2$ or $-PR_2$;

the substituents R, same or different from each other, are hydrogen atoms, C_1-C_{20} alkyl radicals, C_3-C_{20} cycloalkyl radicals, C_2-C_{20} alkenyl radicals, C_6-C_{20} aryl radicals, C_7-C_{20} alkylaryl radicals or C_7-C_{20} arylalkyl radicals, optionally containing Si or Ge atoms and, additionally, two adjacent R substituents on Cp or Cp' may form a C_5-C_8 cycle and, further, two R substituents of the same YR_2 group or of two adjacent YR_2 groups may form a ring comprising from 3 to 8 atoms;

when q=0, the R' substituents are difined as the R substituents while, when q=1, 2 or 3, the two R' substituents of the groups Cp and Cp' together form the divalent group $(YR_p)_q$.

2. The metallocene compound according to claim 1, in which substituents R are hydrogen atoms.

3. The metallocene compound according to claim 1, in which the divalent group $(YR_p)_q$ is selected among CR_2, SiR_2, GeR_2, NR, PR and $(CR_2)_2$.

4. The metallocene compound according to claim 3, in which

the divalent group $(YR_p)_q$ is selected among $Si(CH_3)_2$, CH_2, $(CH_2)_2$ and $C(CH_3)_2$.

5. The metallocene compound according to claim 1, in which the transition metal M is Zr.

6. The metallocene compound according to claim 1, in which the substituents X are chlorine atoms or methyl groups.

7. The metallocene compound according to claim 1, in which q is different from 0, and the Cp and Cp' groups are selected among those of formula (II) and (III).

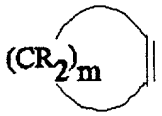
8. The metallocene compound according to claim 7, in which the Cp and Cp' groups are the same as each other.

9. The metallocene compound according to one of the claims 7 or 8, in which the divalent group $(YR_p)_q$ is a $Si(CH_3)_2$ group.

10. The metallocene compound according to claim 1, in which q=1, the Cp group is selected among those of formula (II) and (III), and the Cp' group is an unsubstituted cyclopentadienyl group.

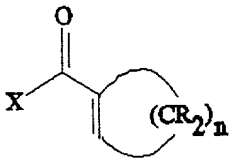
11. The metallocene compound according to claim 10, in which the divalent group $(YR_p)_q$ is a $C(CH_3)_2$ group.

12. A process for the preparation of a cyclopentadienylic compound of formula (II), which comprises reacting, in an acid medium, a cycloalkene of formula (V):



(V)

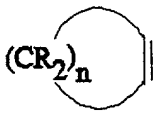
with a 1-cycloalkene derivative of formula (VI):



(VI)

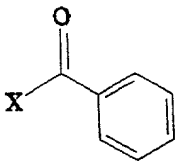
wherein n, m and R have the meaning given and X is OH, OR, O(CO)R, Cl or Br.

13. A process for the preparation of a cyclopentadienylic compound of formula (III), which comprises reacting, in an acid medium, a cycloalkene of formula (V'):



(V')

with a benzene derivative of formula (VIII):



(VIII)

wherein n, m, R and X have the meaning given above.

14. A cyclopentadiene ligand of formula (XI):

$$(YR_p)_q(Cp)(Cp') \qquad (XI)$$

wherein Cp, Cp', $(YR_p)_q$, Y, R, p and q have the meaning given above.

15. A catalyst for the polymerization of olefins comprising the reaction product between:

(A) a metallocene compound of formula (I), optionally as a reaction product with a organo-aluminiumo of formula AlR^4_3 or $Al_2R^4_6$, in which the substituents R^4, same or different from each other are R^1 or halogen, and

(B) an aluminoxane, optionally in admixture with a organo-aluminium compound of formula AlR^4_3 or $Al_2R^4_6$, in which the substituents R^4, same or different from each other, are defined as above or one or more compounds capable of forming a alkyl metallocene cation.

16. The catalyst according to claim 15, wherein the metallocene compound of formula (I) is selected from dimethylsilanediyl-bis(2,3-cyclotetramethyleneinden-1-yl) zirconium dichloride, dimethylsilanediyl-bis(octahydrofluorenyl)zirconium dichloride, isopropyliden(cyclopentadienyl)(2,3-cyclotetramethyleneinden-1-yl)zirconium dichloride and isopropyliden(cyclopentadienyl)(2,3-cyclotetramethyleneinden-1-yl)hafnium dichloride.

17. The catalyst according to claim 15 or 16, wherein the

alumoxane is selected from methylalumoxane and isobutylalumoxane.

18. A process for the polymerization of olefins comprising the polymerization reaction of at least an olefinic monomer in the presence of a catalyst as claimed in any of claim 15 to 17.

19. The process according to claim 18, wherein ethylene is copolymerized with higher olefins.

20. The process according to claim 19, wherein an LLDPE copolymer is prepared.

21. The process according to claim 19, wherein an elastomeric copolymer of ethylene with alpha-olefins of the formula CH_2=CHR, wherein R is an alkyl radical having from 1 to 10 carbon atoms, optionally containing small proportions of units deriving from polyenes, is prepared.

22. A process for the oligomerization of propylene carried out in the presence of a catalyst as claimed in any of claims 15 to 17.